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ABSTRACT

Outdoor education programs provide opportunities for students to become environmentally conscious citizens. However, awareness of environmental issues is not enough to preserve our world of limited natural resources. Students must also recognize their environmental responsibilities and change their behaviors accordingly. This digest reviews the literature on developing environmental responsibility. Various studies have shown that environmental instruction in schools and resident camp programs has positive effects on the environmental awareness and attitudes of children and adolescents. However, the link between outdoor education and development of positive environmental attitudes and responsibility was found to be weak and in need of further research. This led outdoor educators to look to related fields for techniques that have successfully created positive behavioral changes in students. Ethical behavioral change in students has not been promoted by lectures, excessive moralizing, or externally derived codes of ethics or conduct. As a result, outdoor educators have focused on environmental action activities that develop responsible behavior. Elements of successful activities and programs include outdoor experience and involvement, autonomous student behavior and problem solving, development of environmental action skills, focus on specific issues, small-group discussion, reflection, mentoring, long-term follow-up, and connection to the local community. (Contains 13 references.) (SV)

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Outdoor Education and Environmental Responsibility

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Outdoor education offers programs that provide opportunities for students to become environmentally conscious citizens. However, awareness of environmental issues is not enough to preserve our world of limited natural resources. Students must also be prepared to recognize their environmental responsibilities and act upon them. This involves behaving in ways that sustain and nurture the natural environment and consider the needs of others. Such a sense of environmental responsibility is a potential outcome of outdoor education under certain conditions (Matthews & Riley, 1995). This Digest reviews what various studies have shown about developing environmental responsibility.

Knowledge and Attitude Change

In the past, outdoor educators conducted studies to assess the effect of environmental outdoor education programs on knowledge and attitudinal change. The knowledge-attitude-behavior change model described by Matthews and Riley (1995) holds that an increase in knowledge will lead to a change in attitude which will in turn influence behavior. Consequently, environmental knowledge and attitudes have been frequently evaluated when attempting to determine the effect of outdoor education programs on the development of environmental responsibility (Matthews & Riley, 1995).

For example, Bryant and Hungerford (1977) conducted a study in which they presented an instructional unit on environmental problems to kindergarten students. They then asked the students to describe their own and others' responsibilities as a way of measuring the students' verbal commitment to action. The researchers found that students appeared more environmentally conscientious at the conclusion of the environmental education unit. They concluded that kindergarten children could understand environmental issues and citizenship responsibilities.

In another study, Jaus (1984) assessed the short- and long-term impacts of environmental instruction on the attitudes of third graders. Instruction for the unit involved group discussions about environmental problems. When post-tested, the experimental group scored 30 percent higher than on their pre-test of positive environmental attitudes; the control group had only a 2 percent increase.

Additionally, Driver and Johnson (1984) studied the long-term benefits of the Youth Conservation Corps program, which combines outdoor work opportunities and environmental education for youth ages 15 to 18. The youths indicated that they had become more environmentally aware as a result of the program.

Finally, Shepard and Speelman (1986) measured the impact of participating in an outdoor education program at resident 4-H camps in Ohio on children ages 9 to 14. The experimental group participated in outdoor education programs emphasizing sensory awareness and basic ecological concepts, while the children in the control group did not. Although the experimental treatment did not develop significantly more positive environmental attitudes, researchers found that program *length* had an effect on positive environmental attitude development. Previous camp experience, camper age, and area of residence seemed to affect environmental attitudes as well. The researchers concluded that resident camp programs of 5 days in length have a positive effect on attitudinal development. They also recommended that campers from urban areas receive an initial period of acclimation to the natural environment before environmental concepts are introduced due to their relatively limited exposure to the natural environment on a regular basis.

Behavior Changes

Despite the positive results indicated by the previously mentioned studies, the link between outdoor education and development of positive environmental attitudes and responsibility was found to be rather weak and in need of further research (Matthews & Riley, 1995; Shepard & Speelman, 1986). This has led outdoor educators to look to related fields for techniques that have successfully created positive behavioral change in students.

Matthews and Riley (1995) conclude that the following have *not* worked in bringing about ethical, behavioral change in students: "lectures, excessive moralizing, external(ly) derived codes of ethics/conduct, adults setting the ethics agenda, and teachers/leaders as authoritarian figures" (p. 17). As a result, outdoor educators have directed more attention to environmental action activities that develop responsible environmental behavior.

> For example, Ford and Blanchard (1993) state that outdoor activities can create an initial sensitivity toward the environment, the first and essential step on the path toward increased understanding of environmental processes, increased understanding of our place in, and dependence upon, the ecosystem, and...to action on behalf of the environment. (p. 54)

Matthews and Riley (1995) seem to support Ford and Blanchard's assertion that environmental responsibility is best developed outdoors. Involvement in outdoor activities stimulates interest in the outdoors, which in turn motivates students to learn about the natural environment.

Other studies seem to support this position. Ramsey and Hungerford (1989) studied the effects of an outdoor education curriculum package that used environmental issue investigation and action training on 7th-grade students. The treatments used with the experimental group were allowing autonomous student behavior, focusing on problem solving, developing and using environmental action skills, and focusing on specific environmental issues. After 18 weeks the experimental group reported signifi-

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cant changes in their environmental behavior and knowledge of possible solutions to environmental problems. The control group, which received the usual science instruction, did not report such changes.

Howe and Disinger (1988) also concluded that outdoor experiences made a significant impact on student attitudes and found that outdoor settings were effective in teaching awareness of environmental issues. In addition, they reported that the most effective instructional strategies for developing environmental responsibility were case studies, field trips, community inventory projects, and community action projects. Other effective methods include small group discussions, dilemma discussions, role playing, the use of role models and mentoring, participation in community clubs, and peer teaching (Matthews & Riley, 1995).

Matthews and Riley (1995) found that the programs most likely to change behavior involve concrete, environmentally positive, action-oriented experiences; a relevant context; and long-term involvement, support, follow-up, and reinforcement by role models. Hungerford and Volk (cited in Matthews & Riley, 1995) add that effective programs allow students to gather in-depth knowledge; require students to use critical thinking skills; and involve application of what students have learned.

In *Just Beyond the Classroom*, Knapp (1996) proposes that effective outdoor education programs focus on the community, involve service learning, be interdisciplinary, use problem-based learning methods, allow for cooperation, and include time for reflection. Attarian (1996) seems to support these recommendations when he states,

> ... developing values is a lifelong process. As educators we can provide our students with the experiences and tools to help them become more knowledgeable about the environment and their place in it. Participation in outdoor pursuits classes and programs can give all of us the opportunity for challenge, adventure and excitement. Perhaps most of all, the outdoor experience offers us a chance to explore and shape our values, attitudes, and behaviors towards the environment and ourselves. (p. 44)

Conclusion

In developing environmental responsibility through outdoor education, perhaps a more collaborative approach with other professional fields is needed. Caken and Tellness (in Fox & Lautt, 1996) point out that outdoor education, outdoor recreation, environmental education, and experiential education share common ground—the values of respect, social responsibility, self-actualization, justice, and freedom for all living beings and the earth. Perhaps we have been taking too simplistic an approach to the development of environmental responsibility by looking only for short-term environmental behavioral changes in our students.

It is time to take a step beyond effecting and measuring short-term behavioral changes. According to Fox and Lautt (1996),

> ... outdoor educators need to 1) embrace the complexity and chaos of ethical frameworks and moral practice in outdoor education, 2) nourish a dynamic self-awareness, 3) make visible diverse ethical frameworks, 4) develop collaborative multi-disciplinary, and cross-cultural teams, and 5) invite mutual critique from people not normally part of the dialogue. (p. 28)

In addition, conducting more longitudinal outcomes-based research would provide much needed documentation of the success of outdoor education in developing environmental responsibility.

As our students turn on computers, surf the net, and watch endless hours of entertainment beamed via satellite dishes, our planet faces ever increasing challenges. Environmental crises such as the greenhouse effect, ozone depletion, water pollution and over-population signal devastating effects on a humanity that continues to have a poor environmental ethic and preservation track record (Lieberstein, 1991). For those who have had the opportunity to participate, outdoor education has made a positive difference. As outdoor educators, our greatest challenge is to continue to create even better and more powerful interactive activities that affect participants in the places where they live. Perhaps then they will be motivated to make the behavioral choices that will sustain our earth.

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